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Redescription and Geographical Variation of *Monopeltis guentheri* Boulenger (Amphisbaenia, Reptilia)

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ABSTRACT

The present paper reviews all available specimens of *Monopeltis guentheri* Boulenger, a form that occurs at several sites in the Congo River Basin. The study confirms that *Monopeltis boulengeri* Boettger is a strict synonym. Minor geographical variation is described. Most important is an ontogenetic change that produces keratinization and gradual fusion of the large cephalic shields. Only a few very juvenile specimens show two discrete shields; as individuals grow, the center of the suture fuses and finally most of it is covered by a thick layer of keratin. Specimens with an autotomized and healed tail show a distally pigmented and rounded tip which is most similar to the short (nonautotomizing) tail of some other species of the genus.

INTRODUCTION

Monopeltis guentheri Boulenger is a small species of amphisbaenian that is apparently restricted to the Congo Basin. It belongs with those species of the genus in which the dorsal surface of the anterior aspect of the head

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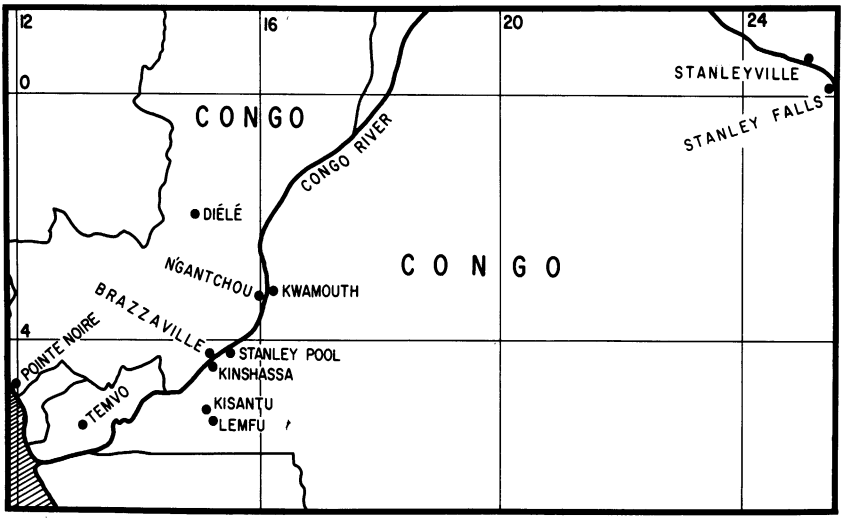

FIG. 1. *Monopeltis guentheri*. Sketch map of the localities mentioned.

is covered by a single, large, heavily keratinized shield, the pectoral region has six or more large, elongate, parallel shields, the precloacal region demonstrates a series of pores, and the tail is terminally rounded, relatively elongate, and exhibits autotomy. In the key of Laurent (1947) the species falls into the first couplet. No attempt is here made to discuss its relation to the apparently sympatric *M. schoutedeni* (Witte, 1933a). Nor is it yet possible to deal with a possibly related Angolan form, until the collections from more southern parts of Africa have been reviewed.

The present paper is one of a series of reviews and redescriptions of tropical reptiles. As in the earlier studies it has been based upon the greatest sample that could be made available by assembly of museum specimens and cooperation of colleagues. It represents the first such review for the widespread African genus *Monopeltis*. Nomenclature and approaches are outlined in previous papers on this group (Gans, 1966, 1967, 1971) although some changes are required for the names of the cephalic and pectoral segments.

The specimens used in the study come from the collections of the following museums which are identified by the abbreviations given. We thank their several curators who made the loans possible: the American Museum of Natural History, New York (AMNH); British Museum (Natural History), London (BM); Carl Gans collection, Buffalo, N. Y., specimens donated by Mlle. M. P. Nicolas (CG); Institut francais

d'Afrique Noire, Dakar (IFAN); Institut Royal des Sciences Naturelles de Belgique, Brussels (IRScNB); Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ); Museum National d'Histoire Naturelle, Paris (MHNP); Naturhistorisches Museum, Wien (NMW); Musée de l'Afrique Centrale, Tervuren (RGMC); Senckenbergische naturforschende Gesellschaft, Frankfurt-am-Main, Germany (SMF); Florida State Museum, Gainesville (UF); United States National Museum, Smithsonian Institution, Washington, D. C. (USNM). This study is supported by grant number GB 6521X from the National Science Foundation. Dr. Latifi's travel was covered by a stipend from the World Health Organization. Mr. James Stamos assisted with the illustrations.

Monopeltis guentheri Boulenger

Monopeltis guentheri BOULENGER, 1885, p. 456 (type locality: "Congo." Syntypes: BM 85.3.9.1:RR1946.8.2.25-85.3.9.5:RR1946.8.2.29).

Monopeltis boulengeri BOETTGER, 1887, p. 649 (redescribed by Boettger, 1888. Type locality: "Kinshassa, prope Stanley-Pool, Congo." Holotype: SMF 11832.)

DIAGNOSIS: A species of *Monopeltis* with 16 to 42 segments to a midbody annulus, 241 to 261 body annuli, 22 to 26 caudal annuli, a caudal autotomy site, and five to nine precloacal pores in a medially interrupted row.

DEFINITION: A medium- to small-sized form of *Monopeltis* with two main head shields fused in adults, although juveniles show a more or less complete suture along the nonkeratinized portion of the dividing line. The anterodorsal surface of the head is keratinized in an hourglass-shaped pattern, with the central constriction least noticeable in adults. The pectoral region is occupied by six to eight, relatively narrow, elongate segments which run almost its full length with only minor modifications in their anterior region. The form has 241 to 261 body annuli, 22 to 26 caudal annuli, a faintly marked autotomy site that falls on the fifth to eighth (generally on the seventh) postcloacal annulus (at which the tail is autotomized in between 15 and 20 per cent of the specimens). There are 14 to 23 dorsal and 12 to 18 ventral segments to a midbody annulus (with the modal mean values falling at 18½ and 19½ dorsals and 13½ ventrals). Specimens have five to nine (generally six, seven, or eight) precloacal pores, that lie anterior to the cloacal shield in a medially interrupted row. The conical tail shows a distally increasing level of pigmentation across the entire tip. Anteriorly this pigment is restricted to the interannular sutures and drops out completely near midbody. The anterior portion of the animal is unpigmented and the eyes are ordinarily invisible.

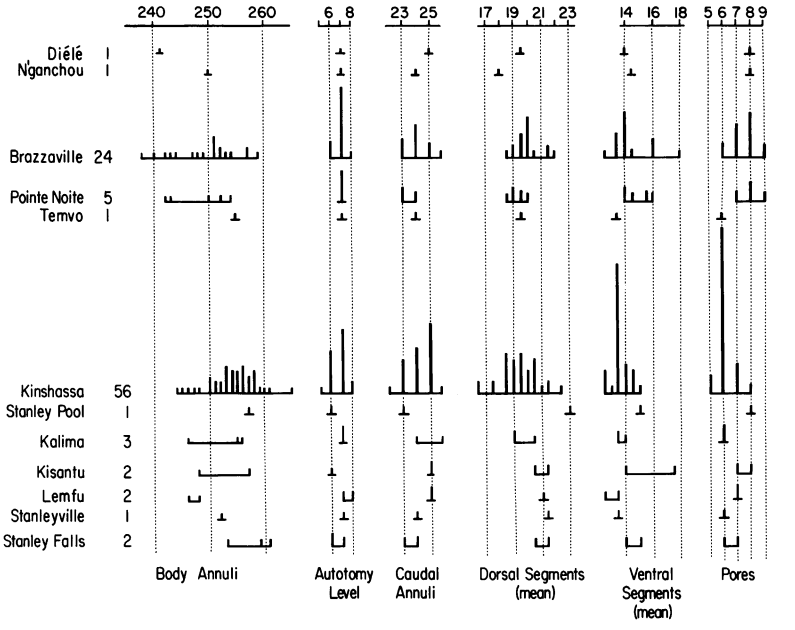

FIG. 2. *Monopeltis guentheri*. Line histogram to document the geographical variation of meristic characters.

DISCUSSION OF TYPES: Typical material has been included in the analysis. Loveridge's (1941, p. 419) decision that *Monopeltis boulengeri* is a synonym of *M. guentheri* is here confirmed.

VARIATION: Figure 1 shows localities from which specimens were obtained. Figures 2 and 3 summarize the geographical variation. The

TABLE 1

COMPARISON OF SAMPLES FROM THE NORTHWESTERN AND SOUTHERN BANKS OF THE CONGO RIVER

		Northwest	South
Number of Body Annuli	N	28	56
	m	250.2	253.3
	$s_{\bar{x}}$	1.108	0.591
Number of Precloacal Pores	N	21	51
	m	7.33	6.216
	$s_{\bar{x}}$	0.211	0.854

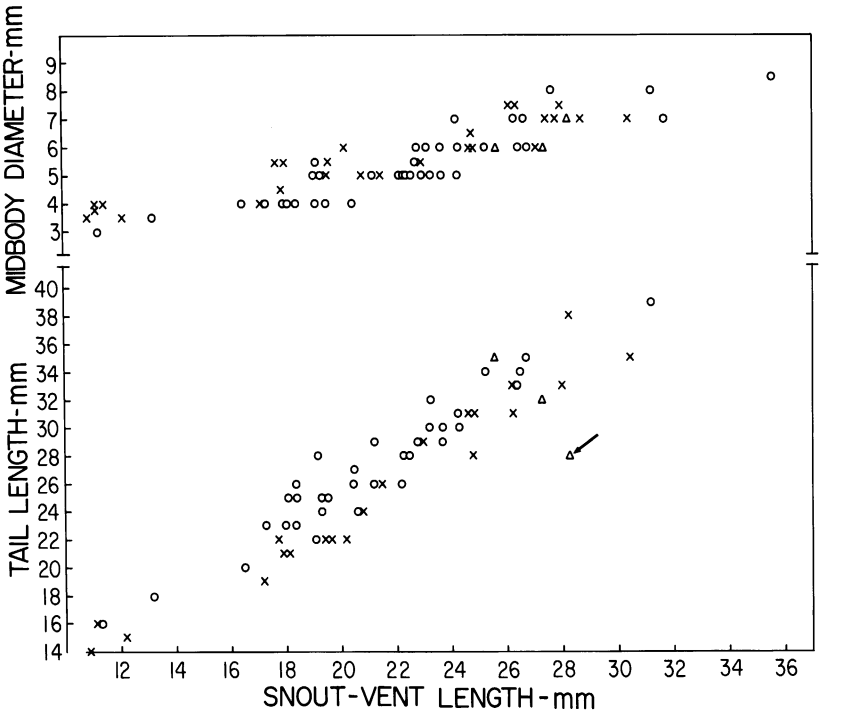

FIG. 3. *Monopeltis guentheri*. Scatter diagram of body diameter and caudal length versus snout-vent length for the several samples. Crosses refer to specimens from the northern (right) bank of the Congo, circles to those from the southern bank. The triangles indicate specimens from the vicinity of Stanleyville. The arrow notes the aberrant NMW 12351 presumably from Stanley Falls.

samples from south of the Congo River (left bank) show some slight differences from the northwestern (right bank) specimens in relative tail length (longer, cf. fig. 3), body annuli (more, table 1), and number of precloacal pores (fewer, table 1). The specimen from Temvo is from the north of the river, but its characteristics are those of southern samples. There are only three specimens from the eastern part of the range, yet these agree well with the material from Kinshassa.

Considerable attention has been devoted to the fact that the type of *boulengeri* apparently had the two main head shields separated by a suture. Examination of the present, more nearly adequate series shows that the separation represents an ontogenic trait. The suture between these two shields is interrupted only in the region where the intershield raphes are covered with keratin. Judging from the available sample, this keratiniza-

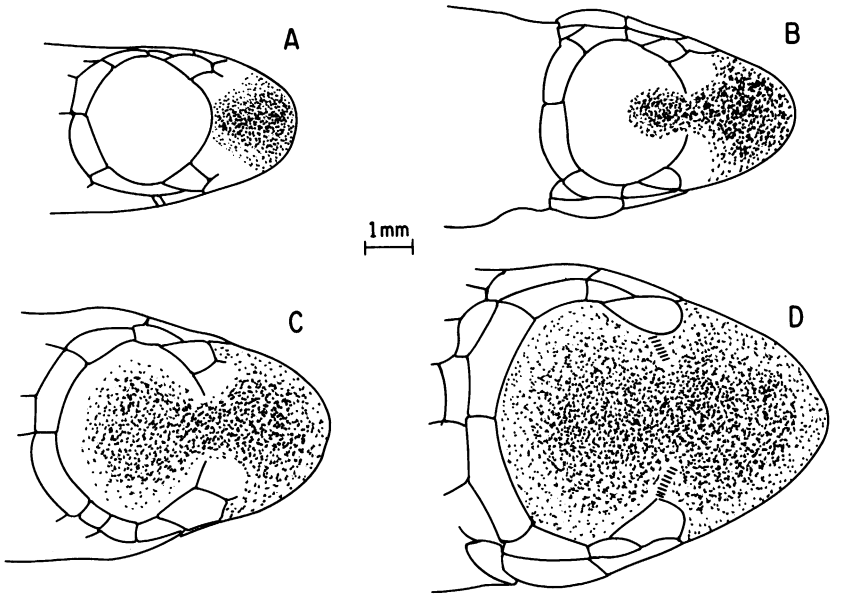

FIG. 4. *Monopeltis guentheri*. Sketches to show the gradual increase of the keratinized area and the consequent increase of fusion of the two large head shields with growth. A, MHNP 90–35 (109+14mm). B, CG 3308 (112+16mm). C, CG 3496 (202+22mm). D, MHNP 90–33 (304+35mm).

tion starts on the anterior rostral edge, along the midline of the anterodorsal surface of the head. It extends widest laterally on the first of the paired shields and generally sends a narrow isthmus across the suture, to the second (cf. AMNH 64805 — snout-vent length, 132 mm.). In two specimens (MHNP 90:35, 1966:802), respectively of 109 and 112 mm. snout-vent length, the keratinized bridge is not yet formed. The keratinized area in the center of the second head shield is wider in larger specimens, so that the keratinized surface resembles an hourglass. The edges of the suture between rostral and frontal may be seen to penetrate for some distance beneath the keratinous isthmus. Specimens of more than 200 mm. body length generally show a significant widening of the isthmus; in adults even the preocular segment shows a weak keratinization (see fig. 4).

DESCRIPTION: This is a small- to medium-sized species of *Monopeltis* with a uniform light color in preservative. The distal tip of the tail shows some pigment concentration, particularly along the interannular sutures. This fades out anteriorly, toward the base of the tail, although in some speci-

mens a speckling of melanocytes may be noted adjacent to the interannular raphes. It gradually becomes less and disappears near midbody. There is no evidence of countershading. The eye is invisible in preserved specimens.

The head, particularly its anterior aspect, is markedly flattened dorsoventrally ending in a spatulate keratinized edge which reaches from the rostral tip to just anterior to the preocular segments. This rostral edge when viewed dorsally forms a smooth elliptical curve. The dorsal surface rises gradually to form a shallow, dome-shaped peak anterior to the edge of the posterior head shield. The lower jaw is countersunk, so that the ventral surface of the snout forms a smooth line when the mouth is closed. The dorsal surface of the head and the rostral edge are thickly keratinized (see Variation), with the layer (which is apparently not shed during ecdysis) as thick as 0.5 mm. in adults, and often sharply defined by its darker pigmentation. The keratinization does not cover the preocular segments; only in very large specimens may these show a thin coating. The slit-shaped nostrils are inserted in the single nasals and lie lateral and just anterior to the tip of the lower jaw. The posterior edge of the head shields corresponds to the greatest width of the head; it is followed by a minor lateral constriction in the nuchal region.

The segments lying along the midline of the upper jaw start with a V-shaped rostral whose wings form the edges of the tip of the slit of the mouth and whose apex comes into narrow contact with the first of two large head shields. These head shields, incompletely divided in almost all specimens, occupy the entire dorsal surface of the head, and fold over the edges to be visible as a horseshoe-shaped strip in ventral view. A subtriangular preocular segment inserts between the edges of the first and second head shields on each side.

Short, trapezoidal first, curved, rectangular second, and drop-shaped third supralabials form a sequence along the edges of the upper jaw. The slender space between the head shields' ventral margins and the infralabials is occupied by a relatively slender nasal, sometimes divided into a relatively chunky nasal and a slender postnasal whose posterior tip swings around the lateral extension of the rostral edge and contacts the preocular. The posterior tip of the large preocular lies just dorsal to the tiny subtriangular ocular, the posterior edge of which contacts a much larger postocular that lies between the third supralabial and the lateral edges of the posterior head shield. There are generally two rows, comprising respectively two and four to six segments of middorsal (parietal) segments between the posterior edges of the second head shields and the first body annuli.

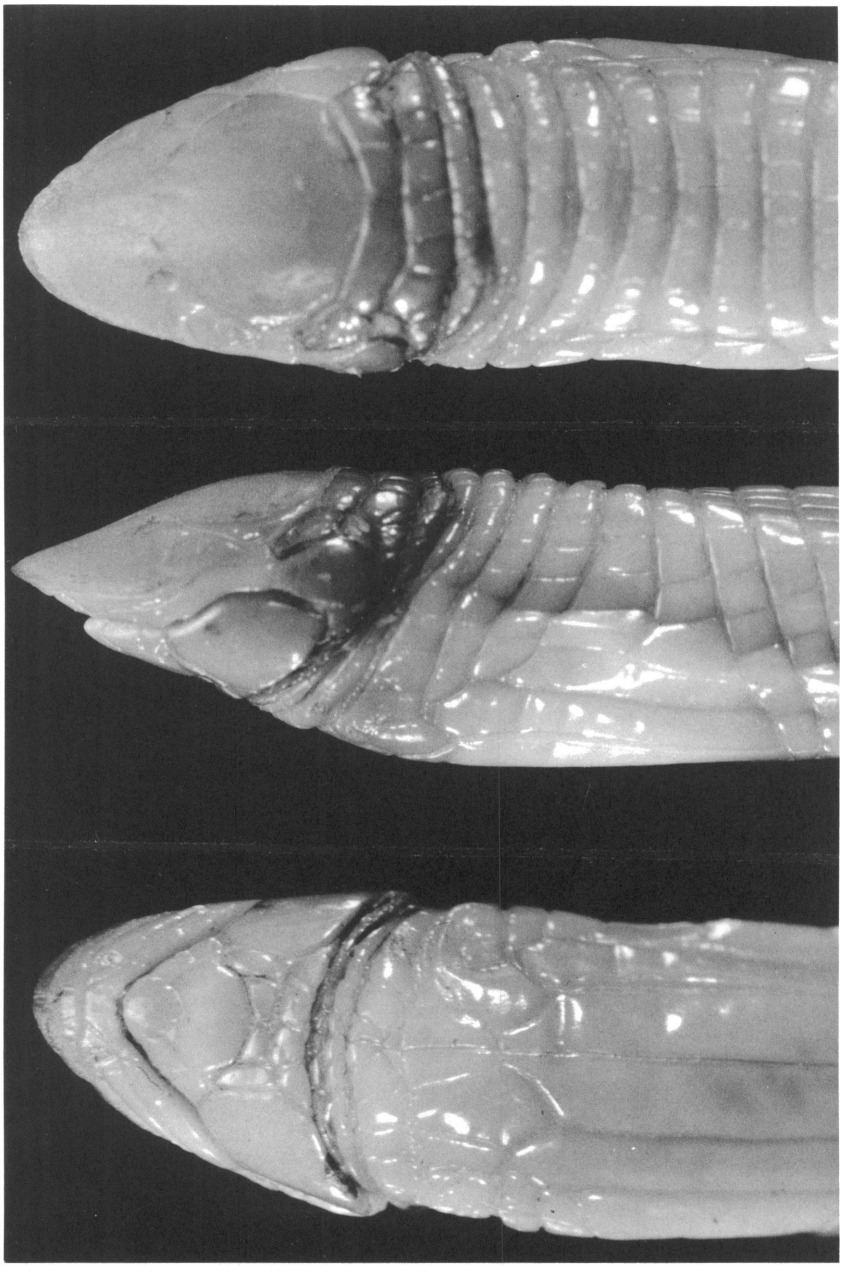

FIG. 5. *Monopeltis guentheri*. Dorsal, lateral, and ventral views of the head of RGMC 27839 from Congo, Kinshassa, to show segmental details.

The tip of the lower jaw is formed by a T-shaped mental that occupies a much shorter distance along the edge of the jaws than does the rostral. It is flanked by small first and second and enormous third infralabials. The strongly bulging third infralabials are clearly the third largest segments of the head. The postmental (= genial) is heart-shaped and contacts the mental and the first two infralabials. The space between the

FIG. 6. *Monopeltis guentheri*. Lateral view of MHNP 86:201 from Congo, Brazzaville, showing the cephalic edge aligned on the dorsal rather than ventral level of the trunk. Note the drastic change in the appearance of the gular region.

third infralabials is occupied by two rows each of four postgenials; the first of which laterally contacts the second infralabials. Some imbricate segments interdigitate between the segments of the lower jaw at its posterior edge adjacent to the gular folds.

The pattern of segmentation seen in the gular region depends mainly upon the position of the head. The ventral segments of the first two body annuli have a rounded, irregular appearance. With the head in the dorsalmost position, one can see multiple rows of much smaller segments interspersed between and anterior to the rows corresponding to the body annuli and covering the folded skin between them. When the head is lowered (rostral tip near the level of the ventral surface of the trunk) these skin folds are hidden beneath the posterior edge of the chin shields. The

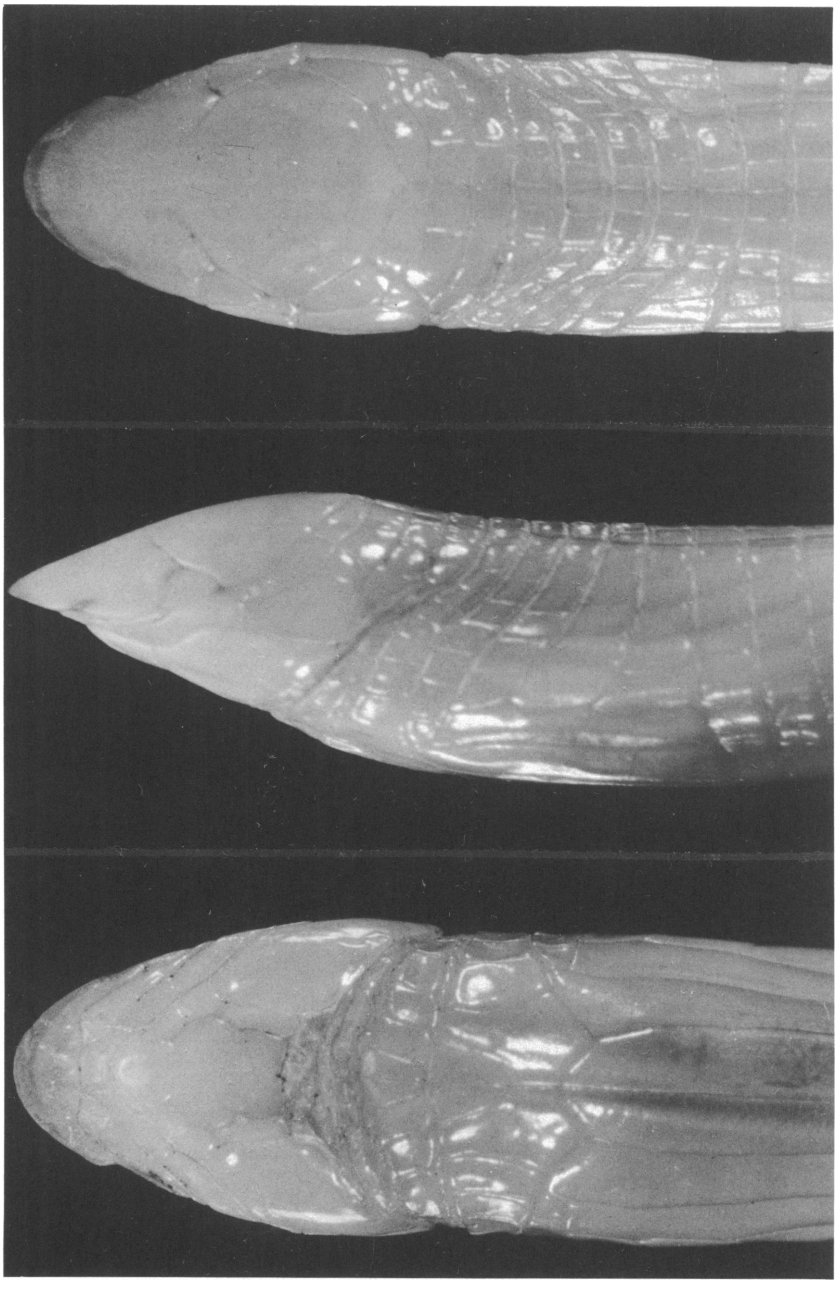

FIG. 7. *Monopeltis guentheri*. Dorsal, lateral, and ventral views of the head of RGMC 27841 from Congo, Kinshassa, to show the proportions of the head in a juvenile.

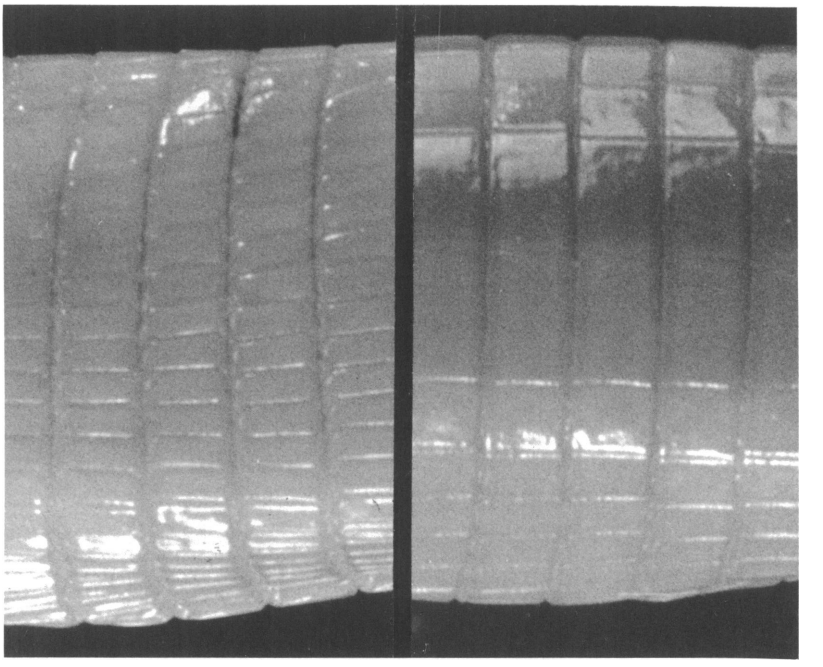

FIG. 8. *Monopeltis guentheri*. Dorsal (left) and ventral (right) views at midbody of RGMC 6344 from Congo, Kinshassa, to show relative proportions of segments.

folding pattern apparently permits the head to be elevated through more than 45 degrees.

The midventral portion of the third body annulus corresponds to three or four pairs of relatively short, modified midventral segments. Following these and corresponding in the next four (numbers four through seven) body annuli are the six parallel, elongate segments of the pectoral shield, the medial ones extending farthest along the midline. The lateralmost pair only corresponds to the ventral portions of the fifth, sixth, and seventh body annuli. The dorsal portions of these body annuli are significantly shorter than the ventral ones, yielding a characteristic radial pattern of the lateral raphes. The interannular raphes do not begin to lie in a plane normal to the long axis of the trunk of the animal until after approximately the fifteenth body annulus.

There are 241 to 261 body annuli from the posterior edge of the third infralabials up to and including the pore-bearing precloacal row. Intercalated dorsal half-annuli are rare although a few specimens have the dorsal segments of the first body annulus replaced by the first preannular

row. A midbody annulus has median counts of 16½ to 23 dorsal and 12½ to 18 ventral segments, although the modal mean values fall at 18½ and 19½ dorsals and 13½ ventrals, suggesting that dorsal values peak around 18 and 20, whereas ventral values peak at 14. There is some segmental irregularity, concentrated mainly in the middorsal and the lateroventral regions. There are almost no diagonal folds crossing the skin.

The cloacal region is characterized by an oval precloacal shield composed of six to eight segments, the medial ones the largest and often showing irregularities. The posterior edge of the shield includes some smaller segments in an irregular pavement; these are sometimes found only on the dorsal edge of the shield and hence invisible in preserved specimens. The medial, generally widened, segments of the precloacal row ordinarily lack pores. These segments may be fused to the middle elements of the shield, which then extends anteriorly to interrupt the pore-bearing annulus. The medial segments occasionally bear pores, which then lie asymmetrically near their lateral edges. Relatively small, rounded pores or pore scars lie on three to five segments on each side of the medial pair. Asymmetrical arrangements are common. Some specimens show only very tiny pores in some positions, or lack secretion cores. There sometimes is evidence of pore-forming tissue beneath certain segments, which show neither pores nor secretion cores. No evidence associates pore size or the presence of secretion with size or sex of specimens, except that the most clearly expressed pores are almost always found in large individuals.

The posterior rim of the cloaca is formed of some 16 segments, with the medial ones of these but slightly enlarged. An irregular array of segments lines the internal aspect of the vent anterior to the postcloacals. The lateral annuli number two to five, with three most common.

The tail is cylindrical, generally taller than wide, especially near the tip where it increases in height, and laterally expanded and then faintly compressed to terminate gradually in a rounded tip at a point below the axial centerline. There are 22 to 26 caudal annuli up to the caudal cap which often gives the impression that the distalmost segments have fused, lost their interannular raphes, and contributed to it. The last four to five annuli are poorly separated.

The lateral sulci are clearly marked after about the thirty-fifth body annulus. At midbody, where they divide the trunk approximately equally, each is as wide or wider than a bordering segment and filled with irregular, imbricate and triangular segments. There is no middorsal segmental alignment, but a midventral folding line is indicated by alignment of the raphes between the enlarged medial segments.

At midbody, dorsal segments are 1½ to 2½ times as long as wide,

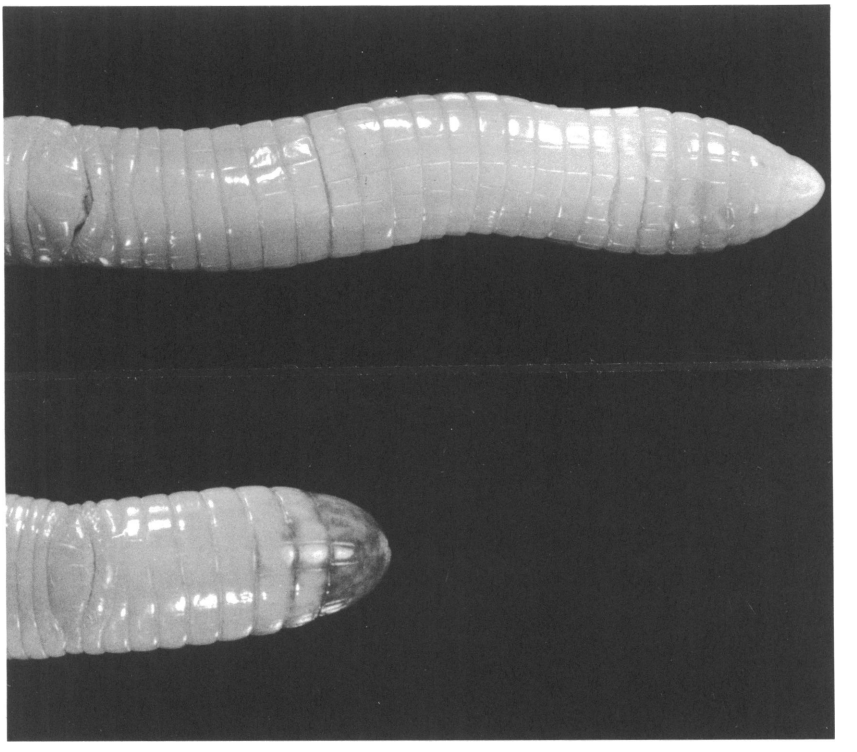

Fig. 9. *Monopeltis guentheri*. Ventral view of cloaca and tail to show entire (top) and autotomized (bottom) tails. Top: RGMC 1251. Bottom: MHNP 1886:201. Note pigmentation of autotomized tip and fusion of distal segments.

whereas the midventral segments are approximately 2½ times as wide as long. The intersegmental sutures on the sides of the dorsal surface form a posteriorly open acute angle.

Morphological Miscellanea: Lynn and Komorowski (1959) have discussed the thyroid.

Specimen RGMC 27838 shows a well-everted, but squashed pair of hemipenes. These are slender organs, of a diameter approximately the width of a caudal annulus, and 1½ to 2½ times as long as wide. They pass from a fairly stout base to a tip that shows only a very short and simple terminal subdivision. A single sulcus ascends the hemipenis and bifurcates just before terminating on the very surface of the tip. Another specimen, AMNH 64798, shows a better preserved but slightly damaged organ. Here the head is clearly bifid, but again only at the very end.

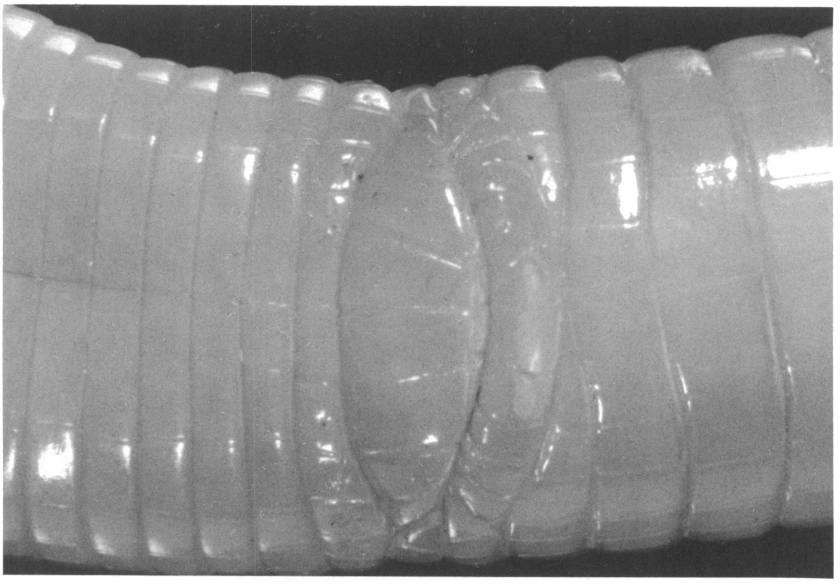

FIG. 10. *Monopeltis guentheri.* Ventral view of cloaca of RGMC 1251A to show pore-bearing segments.

The bifurcation may well be residual, and the pattern derived by reduction from a bifurcate organ.

This simple pattern is markedly different from all those amphisbaenian ones described by Rosenberg (1967), who included a description of the organ in *Leposternon.* It is, however, remarkably similar to that seen in *Monopeltis c. capensis* (CG3521) and also to that suggested by a poorly everted hemipenis of *Rhineura floridana* (UF 14416). It agrees with Cope (1900) regarding the organ of *M. galeata,* except that histological examination would be required to show whether the distal, fine, close "transverse" (here longitudinal) folds are truly external or an artifact resulting from the disruption of the surface. There can be little question that the differences in hemipenial structure shown by these species do not support the concept that the Rhineurinae *sensu* Vanzolini (1951) are a monophyletic group.

RANGE: Basin of the Congo River.

LOCALITY RECORDS: CONGO (Brazzaville): Diele: MHNP 1886:195 (Mission de Brazza). Nganchou: MHNP 1886:199 (Mission de Brazza). Vicinity of Brazzaville: MHNP 17–178. Brazzaville: CG 3308–3309, 3495–3496; IFAN 171, 1269–1270, 1275, 001307, (I–1964), (un-

numbered); MHNP 1886:200–1886:201 (Mission de Brazza), 1890:33–1890:36, 1917:19, 8804; (Chabanaud, 1917; Loveridge, 1941). Entre Pointe Noire et Brazzaville: MHNP 1966:800–1966:804. CONGO (Kinshassa): — BM 85.3.9.1:RR.1946.8.2.25–85.3.9.5:RR.1946.8.2.29 (syntypes *M. guentheri* Boulenger, 1885); IRScNB 1742:1136a–1742:1136b; MCZ 18015; RGMC 11452–11454; (Witte, 1933b, 1954). Temvo: RGMC 2950; (Loveridge, 1941; Witte, 1927, 1933b, 1954; Witte and Laurent, 1942). Kinshassa, prope Stanley Pool: SMF 11832 (ex 5454a) (Holotype *M. boulengeri* Boettger, 1887, 1888). Kinshassa (formerly Leopoldville): AMNH 64798–64805; RGMC 1251a–1251b, 5968–5969, 6344, 8298–8300, 9789, 14530–14533, 14597–14599, 16861–16865 (Ouest), 27837–27848; USNM 20794–20797; (Loveridge, 1941; Witte, 1954; Witte and Laurent, 1942). Kalima (Leopoldville): RGMC 15949–15951. Kisantu: IRScNB 15138:4855; RGMC 1449; (Witte, 1954; Witte and Laurent, 1942). Lemfu (Bas Congo): RGMC 2719–2720; (Witte, 1954; Witte and Laurent, 1942). Stanleyville (now Kisangani): RGMC 1754; (Boulenger, 1919; Loveridge, 1941; Witte, 1954; Witte and Laurent, 1942). Stanley Falls: MCZ 8980; NMW 12351; (Loveridge, 1941). New Stanley Falls: BM 88.8.27.1. Without specimens: Kwamouth: (Witte, 1933b; 1954; Loveridge, 1941). Kuango: (Boulenger, 1897; Loveridge, 1941). Leverville (Loveridge, 1941).

TABLE 2

DATA FOR SPECIMENS OF *Monopeltis guentheri*

Collection and Number	Body, Lateral, (Autotomy) and Caudal Annuli	Dorsal and Ventral Segments	Number of Precloacal Pores	Snout-vent plus Tail Length	Diameter
MHNP 86:195	243+3+(7)25	19–20+14	8 (3+5)	122+15	3.5
MHNP 86:199	251+3+(7)24	18+14–15	8 (4+4)	180+21	5.5
MHNP 17–178	258+5+(7)x	22+17–18	7	242+x	4.0
CG 3308	243+3+(7)24	22–23+16	7	112+16	4.0
CG 3309	259+3+(7)25	19–20+13–14	6	215+26	5.0
CG 3495	248+3+(7)26	19–20+13–14	7	172+19	4.0
CG 3496	244+2+(7)23	19–20+13–14	9	202+22	6.0
IFAN 171	252+3+(7)24	20–23+14	—	248+31	6.5
IFAN 1269	241+3+(8)23	20+14	—	195+22	5.0
IFAN 1270	249+3+(7)x	20+16	—	115+x	4.0
IFAN 1275	254+3+(6)x	20+14	—	278+x	7.0
IFAN 001307	253+3+(6)x	20+14	—	275+x	7.0
IFAN (I-1964)	252+2+(7)25	18–20+18	—	179+21	4.5
IFAN unnumbered	260+3+(7)x	19–20+13–14	—	260+x	5.0
MHNP 86:200	255+3+(7)24	21–22+14–15	8	280+33	7.5
MHNP 86:201	252+3+(7)x	20+14	8	287+x	7.0
MHNP 90:33	253+3+(6)24	20+16	7	304+35	7.0
MHNP 90:34	245+2+(7)24	18–19+14	6	?262+33	7.5
MHNP 90:35	250+3+(7)24	21–23+14	6	109+14	3.5
MHNP 90:36	238+3+(7)24	18–20+14	8	229+29	5.5
MHNP 17:19	252+3+(7)23	20–21+12–13	6	263+31	7.5
MHNP 8804	258+3+(7)23	20+14	7	248+28	6.0
MHNP 1966:800	254+3+(7)24	19–20+14	8	247+31	6.0

TABLE 2—(*Continued*)

Collection and Number	Body, Lateral, (Autotomy) and Caudal Annuli	Dorsal and Ventral Segments	Number of Precloacal Pores	Snout-vent plus Tail Length	Diameter
MHNP 1966:801	242+3+(7)23	18–20+14	8	196+22	5.5
MHNP 1966:802	251+3+(7)x	20+16	7	112+x	3.8
MHNP 1966:803	251+3+(7)23	18–19+15–16	9	177+22	5.5
MHNP 1966:804	243+4+(7)x	18–20+14–15	8	272+x	6.0
BM 46.8.2.25	254+4+(7)24	20+12–14	7	237+30	6.5
BM 46.8.2.26	246+3+(7)24	20+14	7	117+14	4.0
BM 46.8.2.27	256+3+(7)22	20+14	6	127+15	4.0
BM 46.8.2.28	254+3+(7)24	20+14	6	228+27	5.5
BM 46.8.2.29	253+3+(6/7)24	20+14	7	218+25	5+
IRScNB 1742.1136A	252+3+(6)x	– +13–14	7	112+16	4.0
IRScNB 1742.1136B	259+3+(6)x	18+18	—	250+x	5.5
MCZ 18015	244+3/4+(6)21	20+14	6	257+31	7.5
RGMC 11452	250+3+(6)23	21–22+14	6	255+32	5.0
RGMC 11453	251+2+(6)x	19–20+13–14	6	188+x	5.0
RGMC 11454	257+3+(7)25	16–17+19	6	192+26	4.0
RGMC 2950	255+3+(7)24	19–20+13–14	6	208+24	5.0
SMF 11832	257+4/5+(6)23	22–24+14–16	—	186+22	5.0
AMNH 64798	251+3/4+(6)x	21+14	6	356+x	8.5
AMNH 64799	256+4+(7)25	19+13–14	6	312+39	8.0
AMNH 64800	265+3+(7)x	20+14	5	317+(14)	7.0
AMNH 64801	257+3+(6)26	20+14–15	6	233+32	5.0
AMNH 64802	256+3+(7)23	20+12–14	6	243+31	6.0
AMNH 64803	254+3+(7)24	21–22+14	6	212+29	5.0
AMNH 64804	260+3/4+(7)24	22–23+14–15	7	165+20	4.0
AMNH 64805	256+5+(6)24	20–21+14–16	6	132+18	3.5

TABLE 2—(*Continued*)

Collection and Number	Body, Lateral, (Autotomy) and Caudal Annuli	Dorsal and Ventral Segments	Number of Precloacal Pores	Snout-vent plus Tail Length	Diameter
RGMC 1251A	252+2+(7)23	20–21+13–14	7	263+33	7.0
RGMC 1251B	257+2+(6)x	18–20+13–14	6	242+x	7.0
RGMC 5968	250+2+(8)24	19–21+13–14	6	212+26	5.0
RGMC 5969	253+2+(7)24	18–19–21+13–14	6	223+28	5.0
RGMC 6344	251+2+(7)x	20–21+13–15–16	—	276+x	8.0
RGMC 8298	250+2+(6)24	19–20+13–14	6	228+29	6.0
RGMC 8299	253+3+(7)25	18–19+13–14	6	191+25	5.0
RGMC 8300	247+3+(7)24	18–19+12–13	6	206+24	5.0
RGMC 9789	250+2+(8)22	18–19–20+13–14	6	184+23	4.0
RGMC 14530	255+2+(8)25	18–19+14	6	191+22	4.0
RGMC 14531	253+3+(6)23	17–18+13–14	2(6)	224+28	5.0
RGMC 14532	256+2+(7)23	18–19+12–13	—	243+30	5.0
RGMC 14533	252+2+(7)23	18–19+14–15	7	181+21	4.0
RGMC 14597	255+2+(7)25	18–20+13–14	8	237+29	5.0
RGMC 14598	261+2+(6)x	20–21+13–14	6	268+x	6.0
RGMC 14599	249+2+(6)25	19–20+13–14	6	253+34	6.0
RGMC 16861	253+3+(6)x	20–21+14	6	243+x	5.0
RGMC 16862	259+3+(8)5	17–18–19+13–14	6	222+26	5.0
RGMC 16863	254+2+(7)24	18–20+13–14	5	205+26	4.0
RGMC 16864	244+3+(7)25	17–18+13–14	6	112+15	3.0
RGMC 16865	245+3+(7)23	16–17+12–13	6	113+16	3.0
RGMC 27837	254+2+(6)x	19–20+13–14	7	230+x	5.0
RGMC 27838	248+2+(7)25	21–22+13–14	6	232+30	6.0
RGMC 27839	258+2+(7)x	16–17+12–13	6	228+x	5.5
RGMC 27840	254+3+(5)25	18–19+13–14	5	180+23	4.0

TABLE 2—(*Continued*)

Collection and Number	Body, Lateral, (Autotomy) and Caudal Annuli	Dorsal and Ventral Segments	Number of Precloacal Pores	Snout-vent plus Tail Length	Diameter
RGMC 27841	255+3+(7)25	19–20+13–14	6	195+25	4.0
RGMC 27842	258+3+(7)25	19–20+13–14	6	193+25	5.0
RGMC 27843	252+3+(7)24	20–21+13–14	6	193+24	5.0
RGMC 27844	257+2+(7)25	19–20+13–14	6	173+23	4.0
RGMC 27845	255+2+(7)25	18–19+13–14	6	184+26	4.0
RGMC 15949	256+2+(7)x	20–21+13–14	6	233+x	5.0
RGMC 15950	255+3+(7)26	19–20+13–14	6	205+27	5.0
RGMC 15951	246+2+(7)24	19–20+13–14	6	184+25	5.0
IRScNB 15138–4855	—	21–22+17–18	—	192+28	5.5
RGMC 1449	257+3+(6)25	19–21+14	7	237+30	6.0
RGMC 2719	246+3+(8)25	20–21+12–13	7	267+35	7.0
RGMC 2720	248+2+(7)25	20–21+13–14	7	265+34	6.0
RGMC 1754	252+3+(7)24	21–22+13–14	6	256+35	6.0
MCZ 8980	253+3+(6)x	22+16	5	243+x	5.0
NMW 12351	261+4+(7)23	20+14	—	283+28	7.0
BM 88.8.27.1	262+3+(6)24	22+14	7	273+32	6.0

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